Contents of Volume 133, No. 1

PAGE

Proteins

Confirmation of the 1–20 amino acid sequence of human adrenocorticotrophin.
By H. P. J. Bennett, P. J. Lowry & C. McMartin 11

The origin and consequences of concentration-dependence in gel chromatography.
By L. W. Nichol, M. Janado & D. J. Winzor 15

The purification and properties of a single chicken pepsinogen fraction and the pepsin derived from it.
By M. L. Green & J. M. Llewellin 105

Galactosylserine in extensin.
By D. T. A. Lamport, L. Katona & S. Roerig 125

Properties of a 5′-nucleotidase purified from mouse liver plasma membranes.
By W. H. Evans & J. W. Gurd 189

Kinetics of the reaction between oxygen and haemoglobin bound to haptoglobin (*Short Communication*).
By E. Chiancone, E. Antonini, M. Brunori, A. Alfsen & F. Lavialle 205

Lipids

Hydrolysis of ceramide trihexoside by a specific α-galactosidase from human liver.
By M. W. Ho 1

Enzymology

The molecular weight and thiol residues of acetyl-coenzyme A synthetase from ox heart mitochondria.
By J. C. Londesborough, S. L. Yuan & L. T. Webster, Jr. 23

The purification and properties of extracellular glycosidases of the cellular slime mould *Dictyostelium discoideum*.
By D. Every & J. M. Ashworth 37

The distinction between γ-glutamylhydroxamate synthetase and L-glutamine–hydroxylamine glutamyltransferase activities in rat tissues. Studies *in vitro*.
By A. Herzfeld 49

PAGE

The distinction between γ-glutamylhydroxamate synthetase and L-glutamine–hydroxylamine glutamyltransferase activities in rat tissues. Studies *in vivo*.
By A. Herzfeld & N. A. Estes, III 59

Reactions of papain and of low-molecular-weight thiols with some aromatic disulphides. 2,2′-Dipyridyl disulphide as a convenient active-site titrant for papain even in the presence of other thiols.
By K. Brocklehurst & G. Little 67

The effect of methanol and dioxan on the rates of the β-galactosidase-catalysed hydrolyses of some β-D-galactopyranosides: rate-limiting degalactosylation. The pH-dependence of galactosylation and degalactosylation.
By M. L. Sinnott & O. M. Viratelle 81

The mechanism of action of β-galactosidase. Effect of aglycone nature and α-deuterium substitution on the hydrolysis of aryl galactosides.
By M. L. Sinnott & I. J. L. Souchard 89

The role of magnesium ions in β-galactosidase-catalysed hydrolyses. Studies on charge and shape of the β-galactopyranosyl-binding site.
By G. S. Case, M. L. Sinnott & J.-P. Tenu 99

Partial purification and properties of the common inherited forms of adenosine deaminase from human erythrocytes.
By W. R. A. Osborne & N. Spencer 117

D-3-Hydroxybutyrate dehydrogenase from *Rhodopseudomonas spheroides*. Kinetic mechanism from steady-state kinetics of the reaction catalysed by the enzyme in solution and covalently attached to diethylaminoethylcellulose.
By M. J. Preuveneers, D. Peacock, E. M. Crook, J. B. Clark & K. Brocklehurst 133

D-3-Hydroxybutyrate dehydrogenase from *Rhodopseudomonas spheroides*. Kinetics of radioisotope redistribution at chemical equilibrium catalysed by the enzyme in solution.
By M. J. Preuveneers, D. Peacock, E. M. Crook, J. B. Clark & K. Brocklehurst 159

PAGE

The site at which 4-iodoacetamidosalicylate reacts with glutamate dehydrogenases.
By J. J. Holbrook, P. A. Roberts & R. B. Wallis 165

The effect of modifying lysine-126 on the physical, catalytic and regulatory properties of bovine liver glutamate dehydrogenase.
By R. B. Wallis & J. J. Holbrook 173

PAGE

The reaction of a histidine residue in glutamate dehydrogenase with diethyl pyrocarbonate.
By R. B. Wallis & J. J. Holbrook 183

A procedure for the rapid purification of *Escherichia coli* deoxyribonucleic acid-dependent ribonucleic acid polymerase (*Short Communication*).
By P. Humphries, D. J. McConnell & R. L. Gordon 201

Contents of Volume 133, No. 2

PAGE

Proteins

The amino acid sequence of cytochrome *c* from *Nigella damascena* L. (love-in-a-mist).
By R. H. Brown & D. Boulter 251

The association between phosphatidylinositol phosphodiesterase activity and a specific subunit of microtubular protein in rat brain.
By P. J. Quinn 273

The redox potentials of the two-iron plant algal ferredoxins. An electrostatic model.
By R. J. Kassner & W. Yang 283

Subunit interactions in horse spleen apoferritin. Dissociation by extremes of pH.
By R. R. Crichton & C. F. A. Bryce 289

The purification and properties of Factor X from pig serum and its role in hypercoagulability *in vivo*.
By R. J. Dupe & R. M. Howell 311

A comparative study of the effects of chemical modification on the immunochemical and optical properties of human plasma low-density lipoprotein(s) and apoproteins.
By A. M. Gotto, Jr., R. I. Levy, S. E. Lux, M. E. Birnbaumer & D. S. Fredrickson 369

The state of phosphorylation *in vivo* of membrane-bound phosphoproteins in rat brain (*Short Communication*).
By M. Weller & R. Rodnight 387

Production and properties of antisera to dexamethasone–protein conjugates (*Short Communication*).
By M. C. Dumasia, D. I. Chapman, M. S. Moss & C. O'Connor 401

PAGE

Nitrogenase of *Klebsiella pneumoniae*: evidence for an adenosine triphosphate-induced association of the iron–sulphur protein (*Short Communication*).
By R. N. F. Thorneley & R. R. Eady 405

Nucleic Acids

Light-scattering studies on supercoil unwinding.
By A. M. Campbell & D. J. Jolly 209

Carbohydrates

The formation of a β-(1→4)-D-galactan chain catalysed by a *Phaseolus aureus* enzyme.
By N. Panayotatos & C. L. Villemez 263

The chain length of the glycans in bacterial cell walls (*Short Communication*).
By J. B. Ward 395

Small Molecules

Synthesis, characterization and properties of uridine 5′-(α-D-apio-D-furanosyl pyrophosphate).
By P. K. Kindel & R. R. Watson 227

The reaction of bilirubin with diazomethane.
By C. C. Kuenzle, M. H. Weibel & R. R. Pelloni 357

Appendix: Structure and conformation of bilirubin. Opposing views that invoke tautomeric equilibria, hydrogen bonding and a betaine may be reconciled by a single resonance hybrid.
By C. C. Kuenzle, M. H. Weibel, R. R. Pelloni & P. Hemmerich 364

PAGE

Metal complexes of bilirubin in aprotic solvents (*Short Communication*).
By D. W. Hutchinson, B. Johnson & A. J. Knell 399

Enzymology

Uridine diphosphate glucose dehydrogenase from cornea and epiphysial-plate cartilage.
By C. Balduini, A. Brovelli, G. De Luca, L. Galligani & A. A. Castellani 243

Methods of determining rate constants in single-substrate–single-product enzyme reactions. Use of induced transport: limitations of product inhibition.
By H. G. Britton 255

The catalytic activity of horse spleen apoferritin. Preliminary kinetic studies and the effect of chemical modification.
By C. F. A. Bryce & R. R. Crichton 301

The reversibility of adenosine triphosphate cleavage by myosin.
By C. R. Bagshaw & D. R. Trentham 323

A collagenase in extracts of the invertebrate *Bipalium kewense*.
By J. Phillips & M. H. Dresden 329

PAGE

Mevalonate kinase in green leaves and etiolated cotyledons of the French bean *Phaseolus vulgaris*.
By J. C. Gray & R. G. O. Kekwick 335

Purification and properties of dihydrofolate reductase from cultured mammalian cells.
By J. Gauldie, L. Marshall & B. L. Hillcoat 349

Lack of temperature-sensitivity of rat liver pyruvate kinase (*Short Communication*).
By W. Flory & R. E. Koeppe 391

Observations on the action of limit dextrinases on amylopectin-like polysaccharides (*Short Communication*).
By G. Dunn, D. G. Hardie & D. J. Manners 413

Intermolecular Organization

Multiple aggregation factors in cartilage proteoglycan (*Short Communication*).
By J. D. Gregory 383

Monoribosomal attachment to messenger ribonucleic acid in sodium fluoride-treated rabbit reticulocytes (*Short Communication*).
By M. Geraghty, M. Galler, F. Schiffman & M. Freedman 409

Contents of Volume 133, No. 3

PAGE

Proteins

Proteins from different classes of liver nuclei in normal and thioacetamide-treated rats.
By F. Gonzalez-Mujica & A. P. Mathias 441

The labelling of proteins to high specific radioactivities by conjugation to a ^{125}I-containing acylating agent. Application to the radioimmunoassay.
By A. E. Bolton & W. M. Hunter 529

Appendix: Preparation of *N*-succinimidyl 3-(4-hydroxyphenyl)propionate.
By J. Rudinger & U. Ruegg 538

Adenosine 3′:5′-cyclic monophosphate-binding protein from the cellular slime mould *Dictyostelium discoideum* (*Short Communication*).
By A. M. Malkinson, J. Kwasniak & J. M. Ashworth 601

PAGE

Lipids

Studies of lipid A fractions from the lipopolysaccharides of *Pseudomonas aeruginosa* and *Pseudomonas alcaligenes*.
By D. T. Drewry, J. A. Lomax, G. W. Gray & S. G. Wilkinson 563

Carbohydrates

The alkaline cleavage and borohydride reduction of cartilage proteoglycan.
By H. C. Robinson & J. J. Hopwood 457

X-ray diffraction patterns from chondroitin 4-sulphate, dermatan sulphate and heparan sulphate (*Short Communication*).
By E. D. T. Atkins & T. C. Laurent 605

Small Molecules

The synthesis of esters of bilirubin.
By D. W. Hutchinson, B. Johnson & A. J. Knell 493

PAGE

Determination of asparagine, glutamine and pyrrolidonecarboxylic acid in total enzymic hydrolysates of peptides and glycopeptides by gas–liquid chromatography.
By H. Hediger, R. L. Stevens, H. Brandenberger & K. Schmid 551

Enzymology

Adenosine diphosphate sulphurylase activity in leaf tissue.
By J. N. Burnell & J. W. Anderson 417

A comparative study of aldolase from human muscle and liver.
By P. A. M. Eagles & M. Iqbal 429

Polypyrroles formed from porphobilinogen and amines by uroporphyrinogen synthetase of *Rhodopseudomonas spheroides*.
By R. C. Davies & A. Neuberger 471

Some parameters relevant to affinity chromatography on immobilized nucleotides.
By C. R. Lowe, M. J. Harvey, D. B. Craven, & P. D. G. Dean 499

The purification of nicotinamide nucleotide-dependent dehydrogenases on immobilized cofactors.
By C. R. Lowe, M. J. Harvey, D. B. Craven, M. A. Kerfoot, M. E. Hollows & P. D. G. Dean 507

PAGE

Affinity chromatography of lactate dehydrogenase on immobilized nucleotides.
By C. R. Lowe & P. D. G. Dean 515

Multiple forms of acetylcholinesterase from human erythrocytes.
By D. L. Wright & D. T. Plummer 521

Adenosine 5′-triphosphate sulphurylase from *Saccharomyces cerevisiae*.
By C. S. Hawes & D. J. D. Nicholas 541

Covalent chromatography. Preparation of fully active papain from dried papaya latex.
By K. Brocklehurst, J. Carlsson, M. P. J. Kierstan & E. M. Crook 573

The mechanism of inhibition of rat liver tryptophan pyrrolase activity by 4-hydroxypyrazolo-[3,4-*d*]pyrimidine (allopurinol).
By A. A.-B. Badawy & M. Evans 585

The *N*-acetylhexosaminidase components of the ram testis and epididymis.
By S. Bullock & B. Winchester 593

Inosine 5′-monophosphate dehydrogenase of *Escherichia coli* K12: the nature of the inhibition by guanosine 5′-monophosphate (*Short Communication*).
By P. R. Lambden & W. T. Drabble 607

Contents of Volume 133, No. 4

PAGE

Proteins

Isolation and characterization of cyanogen bromide peptides from the collagen of bovine articular cartilage.
By K. Deshmukh & M. E. Nimni 615

The deoxyribonucleic acid modification enzyme of bacteriophage P1. Subunit structure.
By J. P. Brockes 629

Studies on the high-sulphur proteins of reduced Merino wool. Amino acid sequence of protein SCMKB-IIIA3.
By L. S. Swart & T. Haylett 641

The properties of subunits of avidin coupled to Sepharose.
By N. M. Green & E. J. Toms 687

Appendix: The probability of interactions between molecules coupled to a Sepharose matrix.
By N. M. Green 698

PAGE

The interaction of inositol hexaphosphate with methaemoglobin.
By J. V. Kilmartin 725

Comparison of the sedimentation and gel-filtration behaviour of human apotransferrin and its copper and iron complexes.
By P. A. Charlwood 749

The subunits and biological activity of polymorphic forms of tropomyosin.
By P. Cummins & S. V. Perry 765

The primary structure of aspartate aminotransferase from pig heart muscle. Partial sequences determined by digestion with thermolysin and elastase.
By F. Bossa, D. Barra, M. Carloni, P. Fasella, F. Riva, S. Doonan, H. J. Doonan, R. Hanford, C. A. Vernon & J. M. Walker 805

PAGE

Loss of tryptophan associated with photopolymerization and yellowing of proteins exposed to light over 300 nm.
By K. J. Dilley 821

The binding of haptens by the polypeptide chains of rabbit antibody molecules.
By G. T. Stevenson 827

A four-iron ferredoxin from *Desulfovibrio desulfuricans* (*Short Communication*).
By J. A. Zubieta, R. Mason & J. R. Postgate 851

Nucleic Acids

Ribonucleic acid synthesis by spermatozoa from the rat and hamster.
By J. MacLaughlin & C. Terner 635

A comparison of the unfolding and dissociation of the large ribosome subunits from *Rhodopseudomonas spheroides* N.C.I.B. 8253 and *Escherichia coli* M.R.E. 600.
By A. Robinson & J. Sykes 739

Small Molecules

Kinetic studies on the acid hydrolysis of the methyl ketoside of unsubstituted and *O*-acetylated *N*-acetylneuraminic acid.
By A. Neuberger & W. A. Ratcliffe 623

Automated cation-exchange chromatography of peptides at a high sensitivity (0–0.1 absorbance range) (*Short Communication*).
By E. Triantaphyllopoulos 843

Enzymology

Uridine kinase in embryonic rat liver. Modulation of enzyme activity by 5-azacytidine.
By J. Veselý & A. Čihák 609

Multiple forms of acetylcholinesterase from pig brain.
By C. H. S. McIntosh & D. T. Plummer 655

Assay, purification, properties and mechanism of action of γ-glutamylcysteine synthetase from the liver of the rat and *Xenopus laevis*.
By J. S. Davis, J. B. Balinsky, J. S. Harington & J. B. Shepherd 667

PAGE

Investigation of the active site of papain with fluorescent probes.
By G. Allen & G. Lowe 679

Reduced nicotinamide–adenine dinucleotide–nitrite reductase from *Azotobacter chroococcum*.
By J. M. Vega, M. G. Guerrero, E. Leadbetter & M. Losada 701

The interaction of α_2-macroglobulin with proteinases. Characteristics and specificity of the reaction, and a hypothesis concerning its molecular mechanism.
By A. J. Barrett & P. M. Starkey 709

The effects of environmental temperature on the properties of myofibrillar adenosine triphosphatase from various species of fish.
By I. A. Johnston, N. Frearson & G. Goldspink 753

Effects of protein-modifying reagents on an isoenzyme of potato apyrase.
By M. A. Valenzuela, G. del Campo, E. Marín & A. Traverso-Cori 755

Purification and properties of arginase of rat kidney.
By G. A. Kaysen & H. J. Strecker 779

The kinetics of hydrolysis of synthetic glucuronic esters and glucuronic ethers by bovine liver and *Escherichia coli* β-glucuronidase.
By J. Tomašić & D. Keglević 789

Deoxyribonucleic acid-dependent ribonucleic acid polymerases from murine spleen cells. Increased amounts of the nucleolar species in leukaemic tissue.
By D. F. Babcock & M. A. Rich 797

Negatively co-operative ligand binding.
By H. B. F. Dixon & K. F. Tipton 837

Direct measurement of proton binding to the active ternary complex of pig heart lactate dehydrogenase (*Short Communication*).
By J. J. Holbrook 847

Index 855